

facial respiration, he obtained the same results as when he cut both the vagi and the cord. When the cocaine effect wore off there returned gradually the response of the vaso motor centre with its rise in blood pressure upon compression. Lastly, exposing a loop of intestine, he saw that during brain compression the mesenteric vessels contracted, and that they dilated when compression was removed, evidencing the enormous importance of the great splanchnic area.

From these experiments Cushing felt justified in formulating a law,—“An increase of intracranial pressure above blood pressure causes a rise of the latter to a point somewhat above intracranial pressure. Moreover this regulatory mechanism is due to an action of the vaso motor centre and is brought about only by the condition of anæmia.”

“An acquaintance with this regulatory mechanism” continues Cushing, “would appear to throw light upon many points concerning the effect of compression which have hitherto been discussed indecisively. We see that venous stagnation has no relation to compression symptoms; that these symptoms may remain quite absent until we get an anæmia of the medulla; that the vaso motor centre in the medulla possesses the power of working successfully against this anæmia for an undetermined time and of postponing the stage of paralysis; that in local compression an anæmia may exist in the neighbourhood for a long time without prejudice to life so long as the medulla is not involved.”

It is here not the place to discuss questions of priority. The influence of brain anæmia upon blood pressure has long been known; and whether Schultën completely demonstrated the intimate relation between brain compression and blood pressure, or whether Leonard Hill, who speaks of the “protective mechanism” of the vaso motor centre (what Cushing calls the “regulationsmechanismus”), proved and formulated a proposition containing the essentials of Cushing’s law must remain undecided in so far as the present article is concerned. In any case it is indisputable that Cushing by his injection experiments and by the use of the window with accurate simultaneous measurements of the blood pressure and of intracranial pressure, has settled once and for all the “Wirkungsweise” of brain compression.

So much for the central point of the question. In addition his experiments confirmed or disproved many other details; such as the extremely free connection between the cerebro-spinal fluid and the sinuses and veins, and its practical lack of communication with the lymphatics; such as the descent of the medulla and the cerebellum into the spinal canal upon compression, and the consequent partial escape of the medullary centres from the compressing force; such as, again, the proper meaning